Eigenvalue Placement And Simultaneous Stabilization Using Tabu Search

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MECHANICAL ENG PUBL LTD, PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART I-JOURNAL OF SYSTEMS AND CONTROL ENGINEERING; pp: 301-306; Vol: 211

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Summary

This paper considers the problem of designing controllers to place simultaneously the closed-loop eigenvalues of a finite number of plants, representing different operating conditions of a system, in a specific region in the left half of the complex s plane. The problem of selecting the controller gains is converted to a simple optimization problem with an eigenvalue-based performance criterion, which is solved by a tabu search. Various performance criteria are suggested and formulated, allowing the eigenvalue placement in distinctive locations in the complex s plane. Several examples are included to demonstrate the usefulness of the method.

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